

No.

8800191



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

BeKalb Plant Genetics

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (PLANT VARIETY PROTECTION ACT, 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'6M502'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 31st day of July in the year of our Lord one thousand nine hundred and ninety.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Clayton Fenter
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S) JMS 7/31/90 DEKALB PFIZER GENETICS ^{Plant Genetics}		2. TEMPORARY DESIGNATION 6M502	3. VARIETY NAME 6M502
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 3100 Sycamore Road DeKalb, IL 60115		5. PHONE (Include area code) (815) 756-7333	FOR OFFICIAL USE ONLY PVPO NUMBER 8800191
6. GENUS AND SPECIES NAME Zea Mays	7. FAMILY NAME (Botanical) Gramineae		FILING DATE <u>July 5, 1988</u> TIME <u>9:30</u> <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.
8. KIND NAME Corn	9. DATE OF DETERMINATION Summer 1986		AMOUNT FOR FILING \$ <u>1800.00</u> DATE <u>May 26, 1988</u>
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) General Partnership			AMOUNT FOR CERTIFICATE \$ <u>200.00</u> DATE <u>July 30, 1990</u>
11. IF INCORPORATED, GIVE STATE OF INCORPORATION			12. DATE OF INCORPORATION
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS JMS 6/26/90 Robert F. Sheyka G. Eric Christophersen Robert E. Roman, Jr. Pfizer, Inc. DeKalb-Pfizer Genetics ^{OR} Douglas A. Fisker 235 East 42nd Street 3100 Sycamore Road 212/573-1189 New York, NY 10017 DeKalb, IL 60115 815/758-9109 PHONE (Include area code):			

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

- a. ☒ Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
 b. ☒ Exhibit B, Novelty Statement.
 c. ☒ Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.)
 d. ☒ Exhibit D, Additional Description of Variety.
 e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.)

☐ Yes (If "Yes," answer items 16 and 17 below) ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ Yes ☒ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ Yes (If "Yes," give date)☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☐ Yes (If "Yes," give names of countries and dates)☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT

Thomas B. Priu

DATE

5/2/88

SIGNATURE OF APPLICANT

DATE

Exhibit A. Origin and Breeding History of the Variety

Origin and Breeding History of 6M502

Summer 1981	Made cross of MAWU.4913
Winter 1981-82	S ₀ - MAWU.4913 selfed in Homestead, FL
Summer 1982	Leesburg, GA S ₁ nursery 4727 select Ear 2 MAWU.4913-2
Summer 1983	S ₂ nursery - Sublet, KS 3085 select Ear 1 MAWU.4913-2-1
Summer 1984	S ₃ nursery - Leesburg, GA 2717 select Ear 1 MAWU.4913-2-1-1
Summer 1985	S ₄ nursery - Leesburg, GA 3060 select Ear 1 MAWU.4913-2-1-1-1
Winter 1985 (Row 6725)	Florida winter nursery S ₅ MAWU.4913-2-1-1-1-Bulk all ears
Summer 1986	20 Rows planted PSSP - Illiopolis, IL - 6M502
Winter 1986	Bulk increase in Hawaii and Homestead, FL

6M502 is a pure line with distinct traits that are reproducible in future generations.

Item 14 Exhibit A

STATEMENT OF STABILITY

Corn inbred 6M502 was coded in 1985 and has been reproduced for the past 2 years by self-pollination. Inbred 6M502 has been judged to be phenotypically and genetically stable.

STATEMENT OF UNIFORMITY

6M502 is uniform for all traits observed.

3

Exhibit B. Novelty Statement

6M502 is a yellow dent corn inbred line derived from a single cross (4913 x MAWU). The public line that is most closely related to 6M502 is M017Ht.

6M502 is significantly different from M017Ht in Days from 50% Silk to 25% Moisture (62 days vs. 54 days), Ear Leaf Length (82.2 cm vs. 66 cm), Tassel Branch Number (15.2 vs. 4.9), Anther Color (Pink vs. Yellow), ~~Silk Color (Pink vs. Green-yellow)~~, and Cob Color (White vs. ~~Red~~). (See Exhibit B. Appendix I.)

Pink

JMS

1/30/90

8800191

6M502
EXHIBIT B. NOVELTY STATEMENT
APPENDIUM 1.

1987 PLANT VARIETY PROTECTION PROGRAM

CHARACTERISTIC	LINE	CHECK LINE
	6M502	M017HT
DAYS FROM EMG. TO 50% SILK	70	70
HEAT UNITS	1526	1527
DAYS FROM 50% SILK TO 25% MOISTURE	62	54
HEAT UNITS	1489	1355
PLANT HT.	221.0	205.5
EAR HT.	78.2	85.0
LENGTH OF TOP EAR INTERNODE	13.8	15.0
TILLERS/PLANT	0.3	0.0
NO. OF EARS/STALK	1.40	1.06
LEAF COLOR	MEDIUM GREEN	MEDIUM GREEN
LEAF ANGLE	INTERMEDIATE	INTERMEDIATE
LEAF SHEATH PUBESCENCE	LIGHT	LIGHT
MARGINAL WAVES	FEW	FEW
LONGITUDINAL CREASES	FEW	FEW
EAR LEAF LENGTH	82.2	66.0
EAR LEAF WIDTH	9.8	9.6
LEAVES/PLANT	20.0	17.0
TASSEL BRANCH NUMBER	15.2	4.9
TASSEL BRANCH ANGLE	INTERMEDIATE	INTERMEDIATE
PEDUNCLE LENGTH cm	8.4	9.0
POLLEN SHED	MEDIUM	MEDIUM
ANTHER COLOR	PINK	YELLOW
GLUME COLOR	GREEN	GREEN
EAR LENGTH cm	18.6	19.6
EAR DIAMETER mm	39.1	36.3
EAR WEIGHT gm	139.4	130.6
KERNEL ROW	DISTINCT	DISTINCT
NO. OF KERNEL ROWS	16.0	10.0
KERNEL ROW DIRECTION	SLIGHTLY CURVED	SLIGHTLY CURVED
SILK COLOR	PINK	GREEN-YELLOW <i>Pink</i>
FRESH HUSK COLOR	LIGHT GREEN	LIGHT GREEN
DRY HUSK COLOR	BUFF	BUFF
HUSK EXTENSION cm	3.9	3.7
HUSK LEAF LENGTH cm	SHORT	SHORT
SHANK LENGTH cm	7.6	11.5
NUMBER OF SHANK INTERNODES	8.2	6.2
EAR POSITION	UPRIGHT	PENDENT <i>upright</i>
EAR TAPER	AVERAGE	AVERAGE
DRYING TIME	SLOW	FAST <i>Average</i>
KERNEL LENGTH mm	10.1	10.2
KERNEL WIDTH mm	8.2	8.8
KERNEL THICKNESS mm	4.8	4.0
PERCENT OF ROUNDS	77.1	45.3

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1/30/90

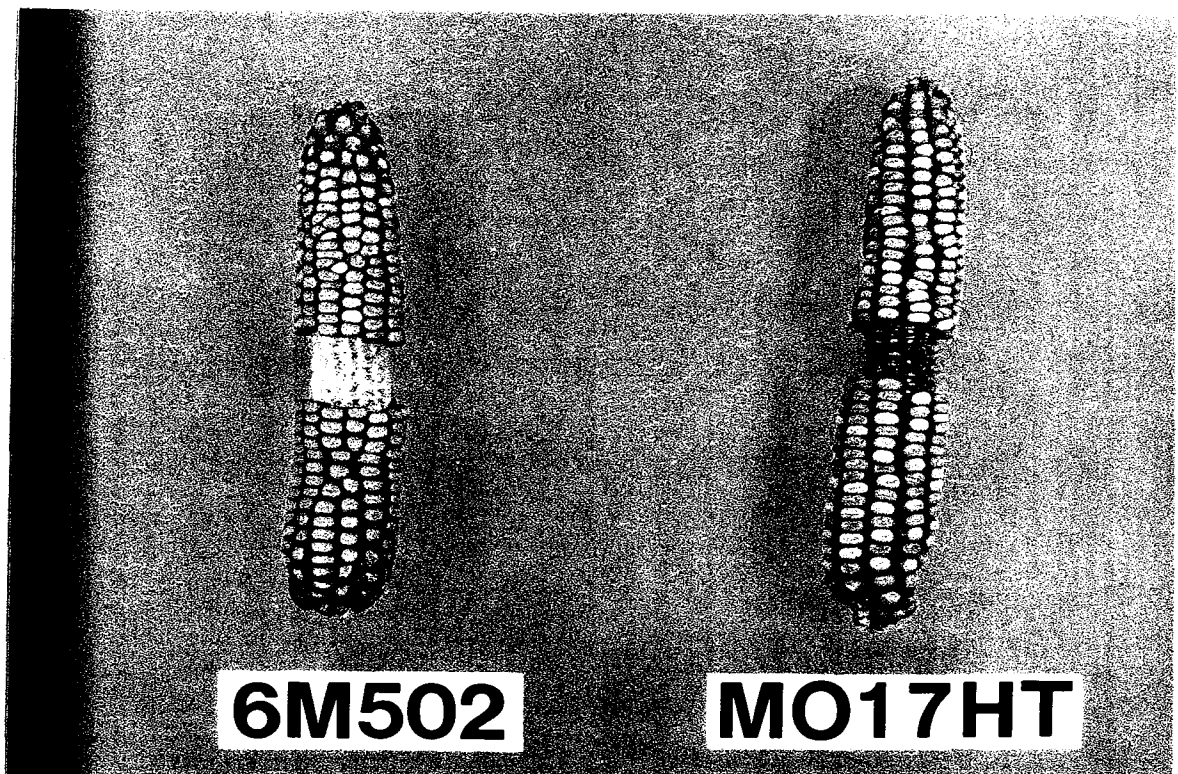
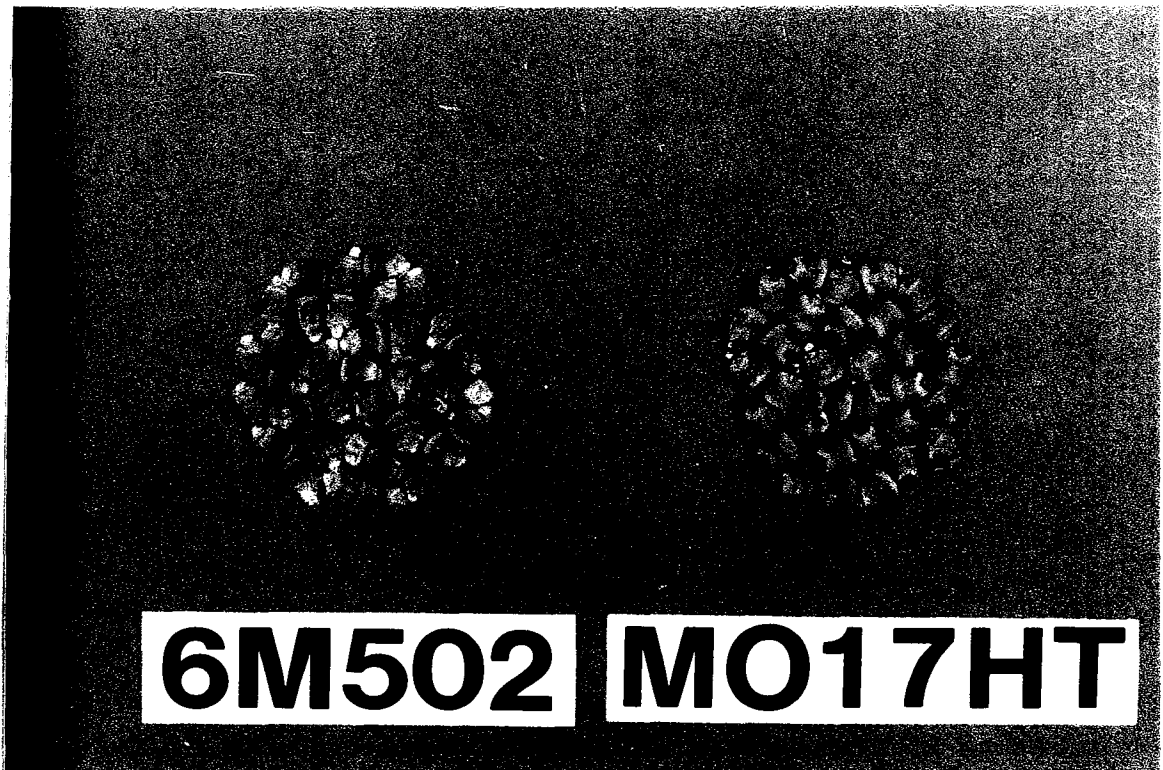
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CHARACTERISTIC	LINE	CHECK LINE
	6M502	M017HT
PERICARP COLOR	COLORLESS	COLORLESS
ALEURONE COLOR	WHITE	PINK
ALEURONE COLOR	HOMOZYGOUS	HOMOZYGOUS
ENDOSPERM COLOR	YELLOW	YELLOW
ENDOSPERM TYPE	NORMAL	NORMAL
WEIGHT OF 100 SEEDS gm	27.8	29.0
COB DIAMETER mm	24.4	19.6
COB STRENGTH	STRONG	STRONG
COB COLOR	WHITE	RED <i>Pink</i>
SEEDLING COLOR	MEDIUM GREEN	MEDIUM GREEN
SEEDLING HT.	<i>Medium</i> TALL	TALL <i>Medium</i>
SEEDLING ANTHOCYANIN	PRESENT	PRESENT
HT. OF INSERTION	74.6	83.6
INTERNODE DIRECTION	STRAIGHT	ZIG-ZAG <i>straight</i>
INTERNODE NUMBER	19.7	16.2
STALK ANTHOCYANIN	ABSENT	NODES <i>Basal</i>
SHEATH ANTHOCYANIN	PRESENT	PRESENT <i>slight</i>
STALK DIAMETER	2.4	2.3
ONE ABOVE EAR LEAF LENGTH	77.6	61.7
ONE ABOVE EAR LEAF WIDTH	9.4	9.7
NO. OF NODES W/BRACE ROOTS	SOME	SOME
NO. OF PLANTS W/BRACE ROOTS	MANY	MANY
BRACE ROOT COLOR	GREEN	GREEN
SHANK TAPER	AVERAGE	SLIGHT

JMS
1/90/90

6M502

Exhibit B. Novelty Statement, Appendix II



U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Corn)

OBJECTIVE DESCRIPTION OF VARIETY
CORN (ZEA MAYS)

NAME OF APPLICANT(S) JMS 7/31/90 DEKALB-PFIZER GENETICS ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 3100 Sycamore Road DeKalb, IL 60115	FOR OFFICIAL USE ONLY PVPO NUMBER 8800191
	VARIETY NAME OR TEMPORARY DESIGNATION 6M502 JMS

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. or) when number is either 99 or less or 9 or less.

1. TYPE:

1 = SWEET 2 = DENT 3 = FLINT 4 = FLOUR 5 = POP 6 = ORNAMENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST
5 = SOUTHCENTRAL 6 = SOUTHWEST 7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability):

(Under "comments" (pg. 3) state how
heat units were calculated)

DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK

HEAT UNITS

DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY

HEAT UNITS

DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE

HEAT UNITS

4. PLANT:

CM. HEIGHT (To tassel tip)

CM. EAR HEIGHT (To base of top ear)

CM. LENGTH OF TOP EAR INTERNODE

Number of Tillers:

1 = NONE 2 = 1-2 3 = 2-3 4 = > 3

Number of Ears Per Stalk:

1 = SINGLE 2 = SLIGHT TWO-EAR TENDENCY
3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

Cytoplasm Type:

1 = NORMAL 2 = "T" 3 = "S" 4 = "C" 5 = OTHER (Specify) _____

5. LEAF (Field Corn Inbred Examples Given):

Color:

1 = LIGHT GREEN (HY) 2 = MEDIUM GREEN (WF9) 3 = DARK GREEN (B14) 4 = VERY DARK GREEN (K166)

Angle from Stalk (Upper half):

1 = < 30° 2 = 30-60° 3 = > 60°

Sheath Pubescence:

1 = LIGHT (W22) 2 = MEDIUM (WF9)
3 = HEAVY (OH26)

Marginal Waves:

1 = NONE (HY) 2 = FEW (WF9) 3 = MANY (OH7L)

Longitudinal Creases:

1 = ABSENT (OH51) 2 = FEW (OH56A)
3 = MANY (PA11)

Width:

CM. WIDEST POINT OF EAR NODE LEAF

Length:

CM. EAR NODE LEAF

NUMBER OF LEAVES PER MATURE PLANT

8

6. TASSEL:

1 5

NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

2

1 = < 30°

2 = 30-40°

3 = > 45°

Penduncle Length:

1 8

CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

2

1 = LIGHT (WF9)

2 = MEDIUM

3 = HEAVY (KY21)

2

Anther Color:

1 = YELLOW

2 = PINK

3 = RED

4 = PURPLE

5 = GREEN

5

Glume Color:

6 = OTHER (Specify) _____

Pollen Restoration for Cytoplasm (o = Not Tested, 1 = Partial, 2 = Good)

T

S

C

OTHER (Specify Cytoplasm and degrees of restoration) _____

7. EAR (Husked Ear Data Except When Stated Otherwise):

1 9

CM LENGTH

3 9

MM. MID-POINT
DIAMETER

1 3 9

GM. WEIGHT

Kernel Rows:

2

1 = INDISTINCT

2 = DISTINCT

1 6

NUMBER

2

1 = STRAIGHT

2 = SLIGHTLY CURVED

3 = SPIRAL

Silk Color (Exposed at Silking Stage):

2

1 = GREEN

2 = PINK

3 = SALMON

4 = RED

Husk Color:

1

FRESH

1 = LIGHT GREEN

2 = DARK GREEN

3 = PINK

6

DRY

4 = RED

5 = PURPLE

6 = BUFF

Husk Extention: (Harvest Stage)

2

1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)

3 = LONG (8-10CM Beyond Ear Tip)

4 = VERY LONG (> 10 CM)

Husk Leaf:

1

1 = SHORT (< 8 CM)

2 = MEDIUM (8-15 CM)

3 = LONG (> 15 CM)

Shank:

8

CM LONG

8

NO. OF INTERNODES

Position at Dry Husk Stage:

1

1 = UPRIGHT

2 = HORIZONTAL

3 = PENDENT

Taper:

2

1 = SLIGHT

2 = AVERAGE

3 = EXTREME

Drying Time (Unhusked Ear):

1

1 = SLOW

2 = AVERAGE

3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

1 0

MM LONG

8

MM. WIDE

5

MM. THICK

Shape Grade (% Rounds)

4

1 = < 20

2 = 20-40

3 = 40-60

4 = 60-80

5 = > 80

8. KERNEL (Dried) :

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1 Pericarp Color: 1 = COLORLESS 2 = RED-WHITE CROWN 3 = TAN 4 = BRONZE
 5 = BROWN 6 = LIGHT RED 7 = CHERRY RED
 8 = VARIEGATED (Describe) _____

1 Aleurone Color: 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) _____

1 1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED
 7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) _____

3 Endosperm Color: 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

3 1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH
 5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) _____

2 8 GM. WEIGHT /100 SEEDS (Unsize Sample)

9. COB:

2 4 MM. DIAMETER AT MID-POINT

Strength:

2 1 = WEAK 2 = STRONG

Color:

1 1 = WHITE 2 = PINK 3 = RED 4 = BROWN
 5 = VARIEGATED 6 OTHER (Specify) _____

10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

0 STALK ROT (Diplodia)	0 STALK ROT (Fusarium)	0 STALK ROT (Gibberella)
2 NORTHERN LEAF BLIGHT	2 SOUTHERN LEAF BLIGHT	0 SMUT
0 SOUTHERN RUST	0 CORN SMUT	0 BACTERIAL WILT
0 BACTERIAL LEAF BLIGHT	0 MAIZE DWARF MOSAIC	0 STUNT
2 OTHER (Specify) -Helminthosporium Carbonum		

11. INSECT RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

0 CORNBORER	0 EARWORM	0 SAPBEETLE	0 APHID
0 ROOTWORM (Northern)	0 ROOTWORM (Western)		
0 ROOTWORM (Southern)	0 OTHER (Specify) _____		

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity		Kernel Type	
Plant Type		Quality (Edible)	
Ear Type		Usage	

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous Authors)

Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 - A System for the Classification of Corn Inbred Lines - PhD. Thesis, Ohio State University.

COMMENTS:

Heat Unit Calculations:

GDU = Daily Max Temp (86F) + Daily Min Temp (≥ 50F) - 50F
 2

Exhibit D. Additional Description of the Variety.

The isozyme analysis of 6M502 and M017Ht shows genetic differences at five different loci: Ampl - 4 vs. 5, Cat3 - null vs. 9, Got1 - 6 vs. 4, Pgm2 - 4 vs. 8, Phi - 5 vs. 4. (See Exhibit D, Appendix I.)

Exhibit D, Appendix I. Additional Description of the Variety.

Isozyme Genotypes of Selected DEKALB Parents

LOCUS	Alleles Present	
	6M502	Mo17Ht
# of plants assayed	8	22
Acp1	2	2
Aco1	4	4
Ak	4	4
Adh1	4	4
Amp1	4	5
Cat3	null	9
Dia1	8	8
Dia2	4	4
Enp1	6	6
Got3	4	4
Got2	4	4
Got1	6	4
Glu1	6	6
Hex2	2	2
Idh1	4	4
Idh2	4	4
Mdh1	6*	6*
Mdh2	6	6
Mdh3	16	16
Mdh4	12	12
Mdh5	12	12
Pgm1	9	9
Pgm2	4	8
Pgd1	3.8	3.8
Pgd2	5	5
Phi	5	4
Tp11	4	4
Tp12	4	4
Tp13	4	4
Tp14	4	4

*Allele is probably 6 but null cannot be ruled out.

Exhibit D, Appendix I. Additional Description of the Variety.

The technique of using isozymes for genotyping or "fingerprinting" is described by the following reference:

Goodman, M.M. and C. W. Stuber. 1980. Genetic identification of lines and crosses using isoenzyme electrophoresis. Proceedings of the Thirty-fifth Annual Corn and Sorghum Industry Research Conference.

Item 14 Exhibit E. Statement of Ownership

Applicant is the owner of the inbred. The inbred was developed by a breeder employed by the applicant.